DOE F 1325.8
(8-89)
EFG (07-90)

United States Government **Department of Energy**

Memorandum

DATE: JUN 1 2 2008

REPLY TO ATTN OF: EM-63 (Dr. James M. Shuler, 301-903-5513)

SUBJECT: Revision 0, DOE Certificate of Compliance No. 9975-96 for the 9975

TO: Patrick W. McGuire, Savannah River Operations Office

Attached is Revision 0 of DOE Certificate of Compliance (CoC) USA/9975/B(M)F-96 (DOE) for the 9975 package, the Approval Record, and the Safety Evaluation Report. The expiration date for this revision is June 30, 2013. This new certification will allow the fabrication of new 9975 containers. The existing 9975 containers will continue to be used under the existing DOE CoC USA/9975/B(M)F-85 (DOE).

If you have any questions, please call Dr. James M. Shuler at (301) 903-5513.

Sincerely,

Dae Y. Chung
Headquarters Certifying Official
Deputy Assistant Secretary
Safety Management and Operations
Office of Environmental Management

Attachment

cc w/att.:
James Shuler, EM-60
Paul Mann, NA-124
Allen Gunter, SR
Steven Bellamy, WSRC

DOE F 5822.1
(5-85)
Formerly EV-618)

U.S. DEPARTMENT OF ENERGY
CERTIFICATE OF COMPLIANCE
For Radioactive Materials Packages

OMB Approval
No. 1910-2000

1a. Certificate Number	1b. Revision No.	1c. Package Identification No.	1d. Page No.	1e. Total No. Pages
9975	0	USA/9975/B(M)F-96 (DOE)	1	9

2. PREAMBLE

2a. This certificate is issued under the authority of 49CFR Part 173.7(d).

2b. The packaging and contents described in item 5 below meet the safety standards set forth in subpart E, "Package Approval Standards" and subpart F, "Package and Special Form Tests" Title 10, Code of Federal Regulations, Part 71.

2c. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. This certificate is issued on the basis of a safety analysis report of the package design or application --

(1) Prepared by *(Name and address)*:

U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29808

(2) Title and Identification of report or application:

Safety Analysis Report for Packaging
Model 9975, B(M)F-96
S-SARP-G-00003, Revision 0, January 2008

(3) Date:
Jan. 2008

4. CONDITIONS

This certificate is conditional upon the fulfilling of the applicable Operational and Quality Assurance requirements of 49CFR parts 100-199 and 10CFR Part 71, and the conditions specified in item 5 below.

5. Description of Packaging and Authorized Contents, Model Number, Transport Index, Other Conditions, and References:

(a) Packaging

(1) Model: 9975

(2) Description:

The components of the package include the drum, insulation, bearing plates, primary containment vessel (PCV), secondary containment vessel (SCV), lead shielding, and aluminum honeycomb spacers. An aluminum PCV sleeve, or 3013 top and bottom spacer, may be used, depending on the type of product can to be transported. The nominal net weight of the packaging ranges from 159–168 kg (350–374 lb). The drum is fabricated as a 132-liter (35-gallon) bolted lid drum of 18-gauge Type 304L stainless steel. Four 1.3 cm (1/2 in.) diameter vent holes are drilled into the drum, approximately 90 degrees apart, 2.5 cm (1 in.) below the drum flange, and are covered with plastic Caplugs (fusible plugs). The plugging devices prevent water from entering the drum through the vent holes under normal conditions of transport. In the event a fire occurs, the plugs melt, allowing the drum to vent gases, generated from the insulation, to prevent rupture of the drum. The drum lid is bolted to a 3.2 cm (1.25 in.) wide by 0.3 cm (1/8 in.) thick angle flange welded to the top of the drum body using 24 1.3 cm (1/2 in.) high-strength bolts. The lid is recessed 1.4 cm (0.55 in.).

6a. Date of Issuance: JUN 1 2 2008

6b. Expiration Date: June 30, 2013

FOR THE U.S. DEPARTMENT OF ENERGY

7a. Address *(of DOE Issuing Office)*

U.S. Department of Energy
Office of Safety Management and Operations,EM-60
1000 Independence Avenue, SW
Washington, DC 20585

7b. Signature, Name, and Title *(of DOE Approving Official)*

Dae Y. Chung
Headquarters Certifying Official
Deputy Assistant Secretary, Office of Safety Management and Operations

A 0.3 cm (1/8 in.) thick by 3.2 cm (1.25 in.) wide circular ring is welded to the outer section of the lid. The ring serves to reinforce the lid, and prevents the lid from shearing away from the bolts during a hypothetical accident condition event. Nuts are tack welded to the underside of the flange, to ease assembly operations. The bolts are tightened to 40.7 ± 6.8 N-m (30 ± 5 ft-lbs) of torque.

The insulation material that surrounds the shielding body is Celotex® cane and/or softwood fiberboard, manufactured in accordance with ASTM Specification C 208-95. The fiberboard is regular grade wall sheathing material, with a nominal density of 0.24 g/cm^3 (15 lb/ft^3). The fiberboard is fabricated in 1.3 cm (1/2 in.) thick sheets that are bonded together with a water-based carpenter's glue or equivalent into top and bottom subassemblies. The subassemblies are fitted into the drum so that the radial clearances between the Celotex®, the Lead Shielding Body, and the drum are all under 0.6 cm (1/4 in.). The radial thickness of the Celotex® is approximately 12.1 cm (4 3/4 in.). Along the axis of the drum, the thickness of the top Celotex® is 8.9 cm (3.5 in.), and the bottom thickness is 8.6 cm (3.4 in.). A stainless steel air shield is placed over, and glued to, the top of the Celotex®.

A 1.3 cm (1/2 in.) thick Firemaster® encapsulated blanket is placed between the top insulation subassembly and the drum closure lid. The blanket is manufactured from a ceramic fiber (Kaowool®), encapsulated in stainless steel foil and heat-sealed.

The radiation shielding body assembly is a lead cylinder that surrounds the PCV/SCV double containment assembly. The shielding body assembly consists of an 18.4 cm (7-1/4 in.) inside diameter, 20-gauge, 304 stainless steel cylinder, with a 20-gauge bottom, and nominal 61.2 cm (24.1 in.) interior height, surrounded by ASTM B-749 lead, that is nominally 1.3 cm (1/2 in.) thick. The lead is surrounded by a 20-gauge, 304 stainless steel exterior liner. The top of the shielding body is closed with a 1.3 cm (1/2 in.) thick ASTM B-209 1100 aluminum shielding lid that is attached with four 0.6 cm (1/4 in.) ASME SA-320 stainless steel bolts, torqued to 13 (±5) in-lb. The shielding body assembly does not employ a lead lid because the PCV and SCV stainless steel closures provide adequate shielding. The shielding body assembly has a minimum weight of 59.1 kg (130.3 lb).

Two 1.3 cm (1/2 in.) thick by 28.4 cm (11.2 in.) diameter ASTM B-209 1000 aluminum bearing plates provide load bearing surfaces, which distribute the load between the shield assembly and the Celotex® insulation.

The PCV is a stainless steel pressure vessel, designed, analyzed, fabricated, and examined in accordance with Section III, Subsection NB of the ASME Boiler & Pressure Vessel B&PV Code (the Code), with design conditions of 900 psig at 300°F. The PCV is fabricated from 12.7 cm (5 in.), Schedule 40, seamless, Type 304L stainless steel pipe [0.66 cm (0.258 in.) nominal wall] and has a standard, Schedule 40, Type 304L stainless steel, pipe cap [0.66 cm (0.258 in.) nominal wall] at the blind end. A stayed head, machined from a 15.2 cm (6 in.) diameter by 5.7 cm (2 ¼ in.) long Type 304L stainless steel (SS) bar is welded to the pipe end. The head is machined to include 5½-12UN-2B internal thread and a female cone-seal surface with a 32 µin. finish. Both vessel body joints are Category B with full penetration/complete fusion circumferential welds.

A 10.2 cm (4 in.), Schedule 40 Type 304L SS pipe is welded to the convex side of the cap to form a skirt to vertically support the PCV. The skirt has two slots on the bottom edge, 180° apart, to engage a rectangular key to prevent vessel rotation during removal and installation of the closure.

The PCV closure assembly consists of a Type 304L SS cone-seal plug, shaped as a truncated cone, and a Nitronic® 60 threaded cone-seal nut. The cone-seal nut and the containment vessel body are made from dissimilar materials to minimize the potential for galling. A leaktight PCV closure is achieved through a male-female cone joint with surfaces machined to identical angles, so that they mate with zero clearance. The cone-seal nut threads into the stayed head forcing the cone-seal plug against the female cone. A 0.24 cm (0.094 in.) diameter through-hole, located in the PCV wall just below the stayed head threads, is provided to vent any pressure in the PCV that may

have built up during transport as the cone-seal nut is unscrewed and the cone-seal plug unseats from the female cone sealing surface.

Two O-ring grooves (an outer and an inner), with a 32 μin. finish, are machined in the face of the male cone-seal plug. Viton GLT and/or GLT-S O-rings fit into these grooves to form a leaktight seal. The male-female cone surfaces are designed to mate with essentially zero clearance, with, or without, the O-rings installed. The cone-seal plug leak-test port is connected by a radial passage drilled to the annular volume between the two O-ring grooves on the sealing surface of the cone-seal plug to assist leak testing. The leak-test port is closed by the leak-test port plug and tested after closing. The containment boundary for the vessel is formed by the containment vessel body, the cone-seal plug, outer O-ring and the leak-test port plug.

A snap-ring joins the cone-seal nut to the cone-seal plug, and unseats the closure seal during disassembly. The closed PCV has an internal volume of approximately 795 cubic cm (313 cubic inches), weighs 15 kg (34 lb), and has a nominally closed length of 47.2 cm (18.6 in.). It has a usable inside cavity that is approximately 38 cm (15 in.) deep, with a minimum diameter of 12.7 cm (5 in.).

A spacer is installed in the bottom of the PCV to provide a flat surface for the contents. The spacer is made of aluminum honeycomb, and is contoured to fit the curved bottom of the PCV cavity. The spacer is fabricated from 3-mil, minimum thick foil, and is rated for an axial compressive strength of 1,500 ± 500 psi before deformation.

The PCV is fitted with an aluminum sleeve to fill the space between food-pack cans and the inner wall of the PCV. The PCV sleeve is fabricated from 6061-T6 seamless aluminum tubing. The sleeve is 36.8 cm (14.5 in.) tall, has a 12.7 cm (5 in.) OD, and an approximately 0.76 cm (0.3 in.) wall thickness. Two finger-hole cut-outs are provided near the top and bottom of the sleeve to facilitate its insertion into, and removal from, the PCV.

The 3013 top spacer is fabricated from 6061-T6 aluminum tubing, with a 12.5 cm (4.92 in.) OD, and is 12.85 cm (5.06 in.) tall. The spacer is placed on top of the 3013 container to take up the remaining axial space within the PCV cavity. The 3013 top spacer prevents the 3013 container from impacting the PCV cone-seal plug in the event of package mishandling or a transportation accident. Two finger-hole cut-outs are provided near both ends of the spacer to facilitate its insertion into, and removal from, the PCV.

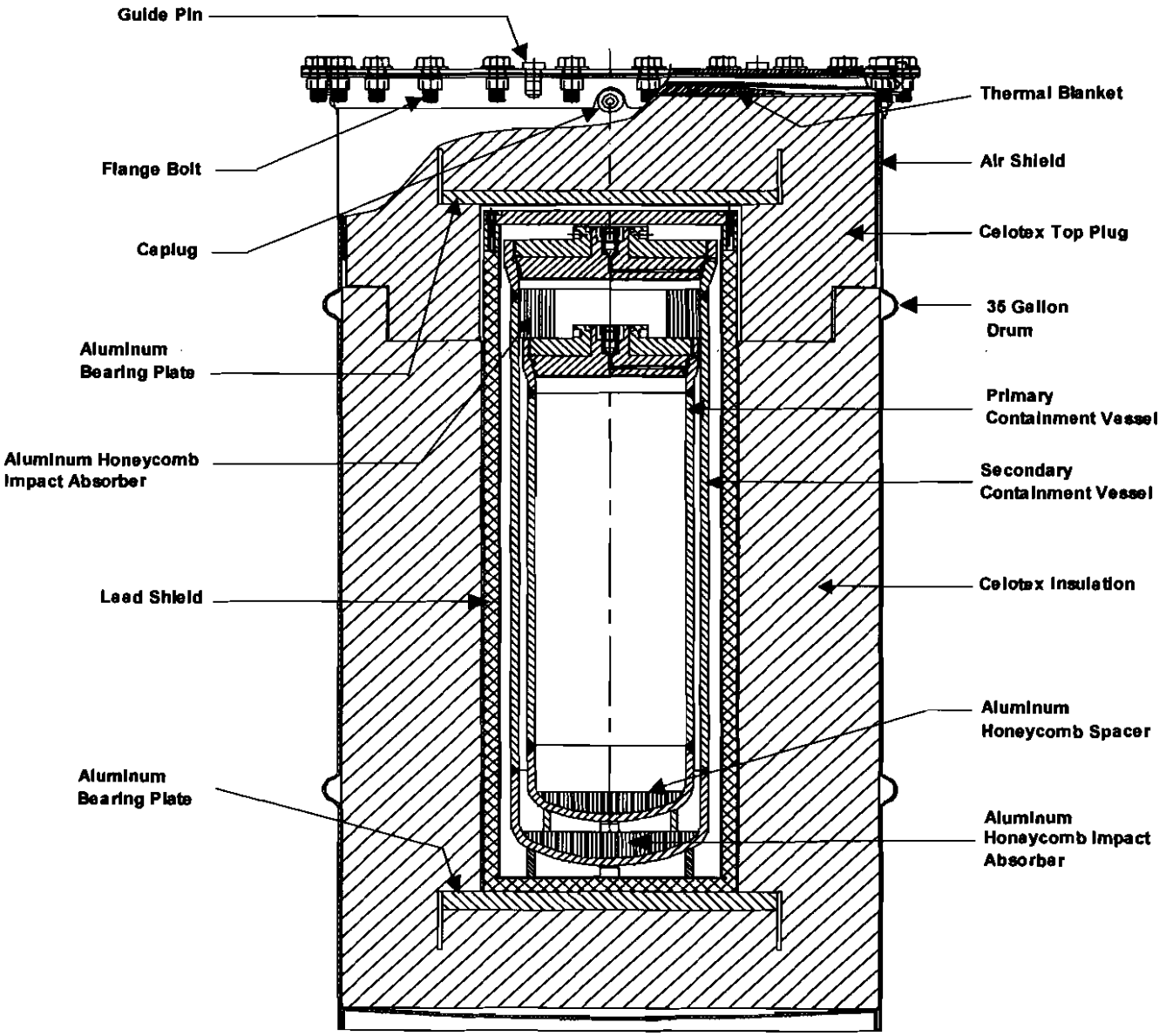
The SCV is a stainless steel pressure vessel designed, analyzed, and fabricated in accordance with Section III, Subsection NB of the ASME Code, with design conditions of 800 psig at 300°F. The SCV is fabricated from 15.2 cm (6 in.), Schedule 40, seamless, Type 304L SS pipe [0.71 cm (0.280 in.) nominal wall], and has a standard Schedule 40 Type 304L SS pipe cap [also 0.71 cm (0.280 in.) nominal wall] at the blind end. A stayed head, machined from a 19.1 cm (7½ in.) diameter by 5.7 cm (2¼ in.) long Type 304L SS bar, is welded to the pipe top end. The head is machined to include 6½-12UNS-2B internal threads and a female cone-seal surface with a 32 μin. finish. Both vessel body joints are Category B, with full penetration/complete fusion circumferential welds. A 12.7 cm (5 in.), Schedule 40 Type 304L SS pipe is welded to the convex side of the cap to form a skirt to vertically support the SCV. The skirt has two slots on the bottom edge, 180° apart, to engage a rectangular key, to prevent vessel rotation during removal and installation of the closure.

The SCV closure is identical to that used on the PCV, except that the SCV closure is larger in height and diameter.

The assembled SCV has an internal volume of approximately 1,534 cm^3 (604 cubic inches). The nominal assembly weight is 25.4 kg (56 lb), and it has a nominally closed length of 61 cm (24 in.). It has a usable cavity approximately 54.6 cm (21.5 in.) deep, with a minimum diameter of 15.2 cm (6 in.).

Aluminum honeycomb impact absorbers are used in the SCV to reduce the impact loads transmitted between the containment vessels. The SCV bottom impact absorber is contoured to fit

the curved bottom of the SCV cavity and has a flat top, providing a level surface on which the PCV stands. The SCV top impact absorber is ring-shaped, and separates the PCV cone-seal nut from the SCV cone-seal plug. The impact absorbers are fabricated from 3-mil minimum thickness foil, and are rated for an axial compressive strength of 1,500 ± 500 psi before deformation.



9975 Packaging Section View

(3) Drawings:

The packaging design is defined by the following Savannah River Site drawings:

Drawing Number	Revision Number
R-R2-F-0026	Revision 4
R-R2-F-0019	Revision 7
R-R2-F-0020	Revision 10
R-R2-F-0025	Revision 4
R-R2-F-0018	Revision 9
R-R3-F-0016	Revision 12
R-R3-F-0015	Revision 5
R-R4-F-0054	Revision 13
R-R4-F-0055	Revision 4
R-R2-F-0037	Revision 1

(b) Contents:

(1) Type and Form of Material:

(i) Uranium metal or oxide, as specified in Content Envelope C.1 (see Table 1);

(ii) Plutonium-238 heat sources, as specified in Content Envelope C.2 (see Table 1);

(iii) Plutonium and/or uranium metal, as specified in Content Envelope C.3 (see Table 1);

(iv) Plutonium and/or uranium oxide, as specified in Content Envelope C.4 (see Table 1);

(v) Plutonium composites, as specified in Content Envelope C.5 (see Table 1);

(vi) Plutonium/tantalum composites, as specified in Content Envelope C.6 (see Table 1);

(vii) Plutonium-238 oxide/beryllium metal, as specified in Content Envelope C.7 (see Table 1);

(viii) Neptunium oxide, as specified in Content Envelope C.8 (see Table 1).

(2) Maximum Quantity of Material per Package (as specified in Table 1):

For the contents described in 5(b)(1)(i) through 5(b)(1)(viii):

(i) The maximum decay heat per package may not exceed 19 watts.

(ii) The maximum weight of all material (radioactive contents, product cans, spacer, etc.) inside the PCV may not exceed 20.1 kg (44.4 lb).

(iii) Except as permitted for oxides, all contents shall be dry.

(iv) Pu/U content bulk density shall be no greater than 19.84 g/cc. No minimum bulk density is specified. However, low bulk densities may require dilution of the local atmosphere within the content container by a specific gas (helium or nitrogen) and/or reduction in the allowable decay heat, as summarized in SARP 1.2.3.2.

(v) Except as stated in Table 1, small concentrations (<1000 ppm each) of other actinides, fission products, decay products, and neutron activation products are permitted.

(vi) Except as stated in Table 1, inorganic material impurity quantities of less than 100 ppm each are permitted so long as the total mass is less than 0.1 weight percent of the total content mass.

Table 1. Content Envelopes

	Material [a, b]	C.1 [c, d]	C.2	C.3 [d, e, f, g]	C.4 [e, g, h, i]	C.5 [d, f, g, j]	C.6 [d, f, k]	C.7	C.8 [l]
		U Metal/Oxide	^{238}Pu Heat Sources	Pu/U Metals	Pu/U Oxides	Pu Composites	Pu/Ta Composites	^{238}Pu Oxide/ Be Metal	Neptunium Oxide
Radioisotope [m] (Weight Percent of Radioactive Material Mass)	^{236}Pu		1×10^{-4}					1×10^{-4}	
	^{238}Pu [n]		100	2	2	0.05	0.05	80	5×10^{-2}
	^{239}Pu [o]		40	100	100	100	100	40	8.8×10^{-3}
	^{240}Pu		13	50	50	6.5	6.5	13	1.5×10^{-3}
	^{241}Pu [o, p]		1	15	15	1	1	1	1.4×10^{-4}
	^{242}Pu		1.5	5	5	0.1	0.1	1.5	7.7×10^{-4}
	^{241}Am + ^{241}Pu		1	15	15	1	1	1	2.3×10^{-4}
	^{243}Am		1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	
	^{244}Cm		1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	1×10^{-4}	
	^{237}Np		0.5	5.0	5.0				100
	^{232}U	1×10^{-5}	4×10^{-6}	1×10^{-5}	1×10^{-5}				
	^{233}U [o]	0.5	0.2	0.5	0.5				2.4×10^{-3}
	^{234}U [q]	100	40	100	100				0.47
	^{235}U [o]	100	40	100	100				0.47
	^{236}U	40	16	40	40				0.19
	^{238}U	100	40	100	100				0.47
	^{232}Th		10	23 [x]	23 [x]				2.3
Impurities (grams)	Al, B, F, Li, Mg, Na			r	r				8.0
	Be			500	500	4,400		200 [s]	0.60
	V					4,400			
	Ta					4,400	6,000		
	C			1,000	1,000				20
Total Mass (kilograms)	Radioactive Materials	13.5	0.1	4.4	4.4	4.4	2	0.02	6
	Impurities			3.08 [t]	3.08 [t]	4.4	6 [u, v]	0.2	0.07
	All Contents	13.5	0.1	4.4	5	4.4	8	0.22	6.81 [w]

Note: Table notes are on the following page.

Table 1 – Table Notes

a	Except as permitted for oxides, all contents shall be dry.
b	Pu/U content bulk density shall be no greater than 19.84 g/cc. No minimum bulk density is specified. However, low bulk densities require dilution of the local atmosphere within the content container by a specific gas (helium or nitrogen) and/or reduction in the allowable decay heat as summarized in Table 3.4.
c	Up to 1 gram of plutonium contamination is permitted.
d	Each metal piece shall have a minimum thickness of 1.0 mm (0.04 inches) and a specific surface area less than 100 mm^2/gram (71 in^2/lb) per DOE-STD-3013. A minimum 50-gram mass per metal piece conservatively meets these criteria.
e	Mass limit due to shielding.
f	Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.1. [8]
g	Plutonium plus uranium mass shall not be less than 30 weight percent of the total content mass.
h	Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.2. [8]
i	The moisture content of the oxide shall be less than 0.5 weight percent of the total content mass.
j	Depleted Uranium or Enriched Uranium may be substituted for any amount of plutonium on a gram-for-gram basis.
k	The Be, V, and Ta each form a composite with the radionuclide content and, as such, are not homogeneously mixed with the Pu. A maximum of 50 pieces of composite material is permitted.
l	Material to be prepared in accordance with WSRC-TR-2003-00388[11] which limits the moisture content of the material.
m	Maximum amounts by constituent.
n	^{238}Pu decays to ^{234}U, which will result in significant concentrations of ^{234}U over time. ^{234}U growth will not adversely impact package performance.
o	Nuclide classified as "fissile" per DOE Good Practices Guide, Criticality Safety Good Practices Program, Guide For DOE Nonreactor Nuclear Facilities, DOE G 421.1-1, 3.79 *Fissile Nuclide*, 8-25-99.
p	^{241}Pu must be less than ^{240}Pu.
q	Applies to ^{234}U other than ^{234}U resulting from ^{238}Pu decay.
r	The listed light element impurities have a combined mass limit of 3080 grams minus the mass of Be and C present.
s	The beryllium is assumed to be physically separated from the plutonium oxide. The 200 grams of beryllium can be in any configuration with up to 275 cm^2 in direct contact with plutonium contents. The surface area restriction is based on shielding.
t	Total impurity limit is the maximum non-Pu/U mass (i.e. minimum 30% Pu and U) allowed by DOE-STD-3013. [4.4 kg × 70% = 3.08 kg]
u	Plutonium mass is assumed bonded to the tantalum (as an outer/inner reflector) and is not readily separable.
v	For analytical purposes there are no mixing assumptions for the Ta with the radionuclide content.
w	Up to 250 ppm sulfur and 3000 ppm silicon impurities permitted.
x	Not to exceed 1000 grams total ^{232}Th.

For the contents described in 5(b)(1)(i):

(vii) Up to 1 gram of plutonium contamination is permitted.

(viii) Each metal piece shall have a minimum thickness of 1.0 mm (0.04 inches) and a specific surface area less than 100 mm^2/gram (71 in^2/lb) per DOE-STD-3013.

For the contents described in 5(b)(1)(iii):

(ix) Each metal piece shall have a minimum thickness of 1.0 mm (0.04 inches) and a specific surface area less than 100 mm^2/gram (71 in^2/lb) per DOE-STD-3013.

(x) Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.1.

(xi) Plutonium plus uranium mass may not be less than 30 weight percent of the total content mass.

For the contents described in 5(b)(1)(iv):

(xii) Plutonium plus uranium mass may not be less than 30 weight percent of the total content mass.

(xiii) Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.2.

(xiv) The moisture content of the oxide shall be less than 0.5 weight percent of the total content mass.

For the contents described in 5(b)(1)(v):

(xv) Each metal piece shall have a minimum thickness of 1.0 mm (0.04 inches), and a specific surface area less than 100 mm^2/gram (71 in^2/lb) per DOE-STD-3013.

(xvi) Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.1.

(xvii) Plutonium plus uranium mass may not be less than 30 weight percent of the total content mass.

(xviii) Depleted uranium, or enriched uranium, may be substituted for any amount of plutonium, on a gram-for-gram basis.

For the contents described in 5(b)(1)(vi):

(xix) Each metal piece shall have a minimum thickness of 1.0 mm (0.04 inches) and a specific surface area less than 100 mm^2/gram (71 in^2/lb) per DOE-STD-3013.

(xx) Contents shall be stabilized in accordance with DOE-STD-3013, Section 6.1.1.

(xxi) A maximum of 50 pieces of composite material is permitted.

For the contents described in 5(b)(1)(vii):

(xxii) The 200 grams of beryllium can be in any configuration with up to 275 cm^2 in direct contact with plutonium contents.

For the contents described in 5(b)(1)(viii):

(xxiii) Material shall be prepared in accordance with WSRC-TR-2003-00388, which limits the moisture content of the material.

(xxiv) Up to 250 ppm sulfur and 3000 ppm silicon impurities are permitted.

(c) Minimum Transport Index for Criticality Control (Criticality Safety Index): 2.0

(d) Conditions:

(1) Content envelope loading arrangements/configurations shall comply with the applicable requirements of Sections 1.2.3.1 and 1.2.3.2 of the SARP.

(2) Food-pack cans with organic liners may not be used for any contents.

(3) All food-pack, 3013, or hex cans, must be examined for post-sealing bulging or buckling prior to placement inside the PCV. No can that has visibly bulged or buckled may be transported in the package.

(4) Food-pack, 3013, or hex cans, shall be inspected upon removal from the PCV after shipment. Any visible bulging, buckling, or evidence of corrosion shall be reported immediately to the DOE Headquarters Certifying Official.

(5) The gross weight of the package may not exceed 183 kg (404 lbs).

(6) For the contents described in 5(b)(1)(v), any package that is subjected to an impact greater than that of a four-foot drop shall be surveyed for neutron dose rate prior to contact or handling.

(7) In addition to the requirements of Subparts G and H of 10 CFR Part 71, and except as specified in section 5(d) of this certificate, each package must be fabricated, acceptance tested, operated, and maintained in accordance with the Operating Procedures requirements of Chapter 7, Acceptance Tests and Maintenance Program requirements of Chapter 8, and packaging-specific Quality Assurance requirements of Chapter 9 of the SARP.

(8) Transport by air of fissile material is not authorized.

PACKAGE CERTIFICATION APPROVAL RECORD
Certificate of Compliance USA/9975/B(M)F-96 (DOE), Revision 0
9975

Docket 07-25-9975

Revision 0 of Certificate of Compliance USA/9975/B(M)F-96 (DOE) for the 9975 package is issued to bring the 9975 design under the current regulations and allow the fabrication of new 9975 containers. Existing 9975 containers built under the -85 requirements will continue to be used under the existing DOE CoC USA/9975/B(M)F-85 (DOE).

The basic Model 9975-96 Package design remains largely unchanged from its Model 9975-85 counterpart, with the following exceptions:

- An outer liner of 20 gauge stainless steel (SS) has been added to supplement the 20-gauge inner SS liner and encapsulate the lead shielding. This change will potentially reduce, or eliminate, the potential for lead carbonate corrosion;
- Increased torque values for the Cone Seal Plug, Cone Seal Nut, and fasteners are included to improve operability;
- Equivalent materials for the Primary and Secondary containment vessel O-rings are allowed, i.e., Viton® GLT/Viton® GLT-S;
- Softwood-based and cane-based Celotex™ are both considered for the purpose of impact limiters and thermal insulation;
- Additional text is included in the SARP to allow for:
  - The addition of plutonium oxide densities that are greater than 19.4 g/cm^3 and/or less than 2.0 g/cm^3;
  - An increase in the ^{241}Am plus ^{241}Pu content from 11 wt% to 15 wt%; and
  - The addition of increased thorium content to Content Envelopes C.3 and C.4;

  (Note: The inclusion of these changes to the allowable Content Envelopes had already been approved, and documented, in a letter amendment to the Model 9975-85 CoC.); and
- Improvements and clarifications identified since the previous edition of the SARP for the Model 9975-85 Package was issued.

The Safety Evaluation Report for this revision is attached.

This certificate constitutes authority for the Department of Energy to use the 9975-96 for shipment of the authorized contents under 49 CFR 173.7(d).

Dae Y. Chung
Headquarters Certifying Official
Deputy Assistant Secretary
Safety Management and Operations
Office of Environmental Management

Date: 6/12/08